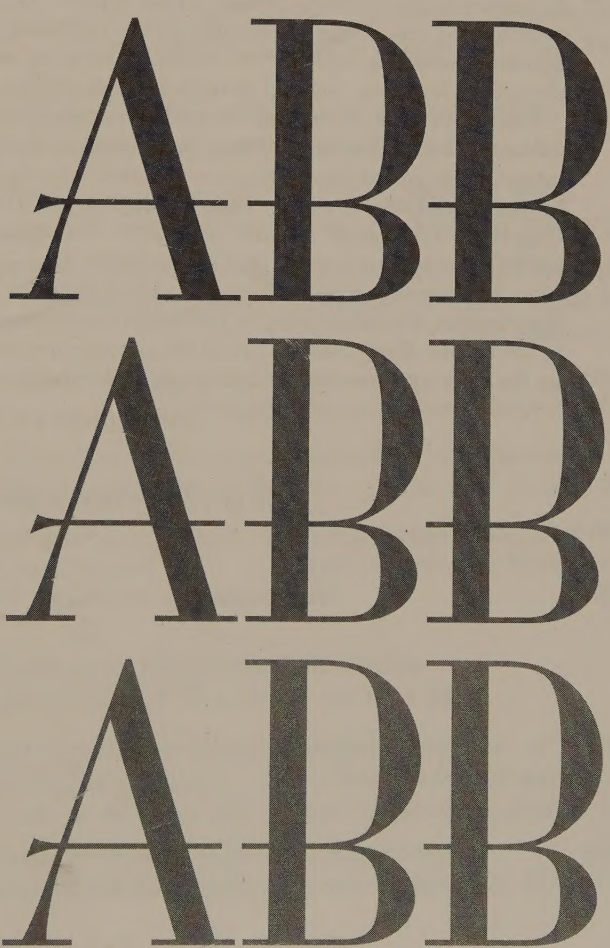
Archives of Biochemistry and Biophysics



Volume 375, 2000

ACADEMIC PRESS
A Harcourt Science and Technology Company

Copyright © 2000 by Academic Press

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the Publisher. *Exceptions:* Explicit permission from Academic Press is not required to reproduce a maximum of two figures or tables from an Academic Press article in another scientific or research publication provided that the material has not been credited to another source and that full credit to the Academic Press article is given. In addition, authors of work contained herein need not obtain permission in the following cases only: (1) to use their original figures or tables in their future works; (2) to make copies of their papers for use in their classroom teaching; and (3) to include their papers as part of their dissertations.

The appearance of the code at the bottom of the first page of an article in this journal indicates the Publisher's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (222 Rosewood Drive, Danvers, Massachusetts 01923), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-2000 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0003-9861/00 $35.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

CONTENTS OF VOLUME 375

Number 1, March 1, 2000

BIOLOGICAL OXIDATIONS: FREE RADICALS, NITRIC OXIDE, ANTIOXIDANTS, AND P450 REACTIONS

Substrate Oxidation and ATP Supply in AS-30D Hepatoma Cells *Sara Rodríguez-Enríquez, M. Eugenia Torres-Márquez, and Rafael Moreno-Sánchez* 21

Hydrogen Peroxide-Mediated Protein Oxidation in Young and Old Human MRC-5 Fibroblasts *Katrin Merker, Nicolle Sitte, and Tilman Grune* 50

Characterization and Partial Purification of Microsomal NAD(P)H:Quinone Oxidoreductases *Anil K. Jaiswal* 62

Double-Base Lesions Are Produced in DNA by Free Radicals *Alexander E. Maccubbin, Herbert Iijima, Noreen Ersing, Jean B. Dawidzik, Helen B. Patrzyc, John C. Wallace, Edwin E. Budzinski, Harold G. Freund, and Harold C. Box* 119

Cellular and Enzymatic Studies of N^{ω}-Propyl-L-Arginine and *S*-Ethyl-*N*-[4-(trifluoromethyl)phenyl]isothiourea as Reversible, Slowly Dissociating Inhibitors Selective for the Neuronal Nitric Oxide Synthase Isoform *Gary R. Cooper, Krystian Mialkowski, and Donald J. Wolff* 183

Modulation of Glutathione Synthetic Enzymes by Acidic Fibroblast Growth Factor *Jinah Choi, Susan R. Opalenik, Weicheng Wu, John A. Thompson, and Henry Jay Forman* 201

DNA REPLICATION, RECOMBINATION, AND REPAIR; TRANSCRIPTION; MECHANISMS OF ONCOGENIC TRANSFORMATION

A Winged Helix Protein from Yeast *Saccharomyces cerevisiae* Recognizes Centromere Sequences *Emily Myrich, Tatiyana Shiyanova, and Xiubei Liao* 78

ENZYME STRUCTURE AND MECHANISMS; CELLULAR REGULATION; PHOSPHORYLATION AND DEPHOSPHORYLATION

Decreased Expression of Adenosine Kinase in Streptozotocin-Induced Diabetes Mellitus Rats *Tadeusz Pawelczyk, Monika Sakowicz, Miroslawa Szczepanska-Konkel, and Stefan Angielski* 1

Experimental Hyperthyroidism Causes Inactivation of the Branched-Chain α-Ketoacid Dehydrogenase Complex in Rat Liver *Rumi Kobayashi, Yoshiharu Shimomura, Megumi Otsuka, Kirill M. Popov, and Robert A. Harris* 55

Ribosomal Stalk Protein Phosphorylating Activities in *Saccharomyces cerevisiae* *German Bou, Miguel Remacha, and Juan P. G. Ballesta* 83

Monovalent Cation Activation in *Escherichia coli* Inosine 5′-Monophosphate Dehydrogenase *Kathleen M. Kerr, Marguerite Cahoon, Daryl A. Bosco, and Lizbeth Hedstrom* 131

Removal of the Tryptophan 139 Side Chain in *Escherichia coli* D-3-Phosphoglycerate Dehydrogenase Produces a Dimeric Enzyme without Cooperative Effects *Gregory A. Grant, Xiao Lan Xu, and Zhiqin Hu* 171

GLYCOCONJUGATES AND OLIGOSACCHARIDES; PROTEOGLYCANS AND EXTRACELLULAR MATRICES

Development of Disulfide Peptide Mapping and Determination of Disulfide Structure of Recombinant Human Osteoprotegerin Chimera Produced in *Escherichia coli* *Lee Anne Merewether, John Le, Michael D. Jones, Richard Lee, Grant Shimamoto, and Hsieng S. Lu* 101

Isolation and Characterization of Glycophorin from Nucleated (Chicken) Erythrocytes *Maria Duk, Hubert Krotkiewski, Taras V. Stasyk, Maxim Lutsik-Kordovsky, Danuta Syper, and Elwira Lisowska* 111

36 323HI XL 1198 7/00 31249-200 NULB

LIPIDS, LIPID MEDIATORS, AND GLYCOLIPIDS

Purification and Characterization of the Human Recombinant Histidine-Tagged Prostaglandin Endoperoxide H Synthases-1 and -2 *Timothy Smith, Jeffrey Leipprandt, and David DeWitt* 195

MEMBRANE PROTEINS AND TRANSPORT; INTRACELLULAR SIGNALS; CYTOKINES AND RECEPTORS

Cystic Fibrosis Transmembrane Conductance Regulator: The Purified NBF1+R Protein Interacts with the Purified NBF2 Domain to Form a Stable NBF1+R/NBF2 Complex while Inducing a Conformational Change Transmitted to the C-Terminal Region *Natalie T. Lu and Peter L. Pedersen* 7

Homology Models of μ-Opioid Receptor with Organic and Inorganic Cations at Conserved Aspartates in the Second and Third Transmembrane Domains *Boris S. Zhorov and Vettai S. Ananthanarayanan* 31

Sphingosine-1-Phosphate Activates Phospholipase D in Human Airway Epithelial Cells via a G Protein-Coupled Receptor *Silvia Orlati, Anna M. Porcelli, Silvana Hrelia, James R. Van Brocklyn, Sarah Spiegel, and Michela Rugolo* 69

P^1,P^4-Diadenosine 5′-Tetraphosphate Modulates L-Arginine and L-Citrulline Uptake by Bovine Aortic Endothelial Cells *Richard H. Hilderman, Terrie E. Casey, and Luminita H. Pojoga* 124

The "SUN" Family: *UTH1,* an Ageing Gene, Is Also Involved in the Regulation of Mitochondria Biogenesis in *Saccharomyces cerevisiae* *N. M. Camougrand, M. Mouassite, G. M. Velours, and M. G. Guérin* 154

PLANT BIOCHEMISTRY AND MOLECULAR BIOLOGY

Further Analysis of Maize C_4 Pyruvate, Orthophosphate Dikinase Phosphorylation by Its Bifunctional Regulatory Protein Using Selective Substitutions of the Regulatory Thr-456 and Catalytic His-458 Residues *Chris J. Chastain, Montgomery Botschner, Grant E. Harrington, Brent J. Thompson, Sarah E. Mills, Gautam Sarath, and Raymond Chollet* 165

Substrate Preferences of Caffeic Acid/5-Hydroxyferulic Acid 3/5-*O*-Methyltransferases in Developing Stems of Alfalfa (*Medicago sativa* L.) *Kentaro Inoue, Kota Parvathi, and Richard A. Dixon* 175

PROTEIN STRUCTURE AND FUNCTION; PROTEASES, PROTEIN TURNOVER, AND POST-TRANSLATIONAL PROCESSING

Expression of a 70-kDa Immunoreactive Form of Bile Salt-Dependent Lipase by Human Pancreatic Tumoral Mia PaCa-2 Cells *Eric Pasqualini, Nathalie Caillol, Laurence Panicot, Anne Valette, and Dominique Lombardo* 90

Reactivity of the Cysteine Residues in the Protein Splicing Active Center of the *Mycobacterium tuberculosis* RecA Intein *Kaori Shingledecker, Shu-qin Jiang, and Henry Paulus* 138

Thyroid Hormone and Dehydroepiandrosterone Permit Gluconeogenic Hormone Responses in Hepatocytes *Nancy Kneer and Henry Lardy* 145

Acan125 Binding to the SH3 Domain of Acanthamoeba Myosin-IC *Henry G. Zot, Venugopal Bhaskara, and Lixia Liu* 161

Number 2, March 15, 2000

RESEARCH REPORT

Functional Expression of an *Arabidopsis* cDNA Clone Encoding a Flavonol 3′-*O*-Methyltransferase and Characterization of the Gene Product *Ingrid Muzac, Jing Wang, Dominique Anzellotti, Hong Zhang, and Ragai K. Ibrahim* 385

BIOLOGICAL OXIDATIONS: FREE RADICALS, NITRIC OXIDE, ANTIOXIDANTS, AND P450 REACTIONS

Spontaneous Porphyria of the Long–Evans Cinnamon Rat: An Animal Model of Wilson's Disease *Kenji Nakayama, Akira Takasawa, Itaru Terai, Toyo Okui, Tohru Ohyama, and Mamoru Tamura* 240

Reserpine Attenuates Interstitial Adenosine-Mediated Activation of Ecto-5′-nucleotidase in Rat Hearts *in Vivo* *Toshio Obata and Yasumitsu Yamanaka* 333

Effects of Al^{3+} and Related Metals on Membrane Phase State and Hydration: Correlation with Lipid Oxidation *Sandra V. Verstraeten and Patricia I. Oteiza* 340

The Existence of a Lysosomal Redox Chain and the Role of Ubiquinone *Lars Gille and Hans Nohl* 347

ENZYME STRUCTURE AND MECHANISMS; CELLULAR REGULATION; PHOSPHORYLATION AND DEPHOSPHORYLATION

Effect of Limited Proteolysis on Phospholipase C-γ1 Kinetics *Gwenith A. Jones and Yichen Wu* 229

Importance of Cysteine Residues for the Stability and Catalytic Activity of Human Pancreatic Beta Cell Glucokinase *Markus Tiedge, Tanja Richter, and Sigurd Lenzen* 251

α(1,3)Fucosyltransferases Expressed by the Gain-of-Function Chinese Hamster Ovary Glycosylation Mutants LEC12, LEC29, and LEC30 *Santosh K. Patnaik, Aimin Zhang, Shaolin Shi, and Pamela Stanley* 322

Inhibition of Bacterial Peptide Deformylase by Biaryl Acid Analogs *Barbara Gordon Green, Jeffrey H. Toney, John W. Kozarich, and Stephan K. Grant* 355

Lithium's Effects on Rat Liver Glucose Metabolism *in Vivo* *J. E. Rodriguez-Gil, J. M. Fernández-Novell, A. Barberá, and J. J. Guinovart* 377

GLYCOCONJUGATES AND OLIGOSACCHARIDES; PROTEOGLYCANS AND EXTRACELLULAR MATRICES

Lectin Histochemical Examination of Rabbit Bladder Glycoproteins and Characterization of a Mucin Isolated from the Bladder Mucosa *Melissa Buckley, Ping Xin, Sharlene Washington, Nancy Herb, Deborah Erickson, and V. P. Bhavanandan* 270

MEMBRANE PROTEINS AND TRANSPORT; INTRACELLULAR SIGNALS; CYTOKINES AND RECEPTORS

Ectonucleotide Diphosphohydrolase Activities in *Entamoeba histolytica* *Fernanda S. Barros, Lúcia F. De Menezes, Ana A. S. Pinheiro, Edward F. Silva, Angela H. C. S. Lopes, Wanderley De Souza, and José R. Meyer-Fernandes* 304

Effect of 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin on the Expression of Luteinizing Hormone Receptors during Cell Differentiation in Cultured Granulosa Cells *Takashi Hirakawa, Takashi Minegishi, Kazuko Abe, Hiroshi Kishi, Yoshito Ibuki, and Kaoru Miyamoto* 371

PLANT BIOCHEMISTRY AND MOLECULAR BIOLOGY

Terpenoid Secondary Metabolism in *Arabidopsis thaliana:* cDNA Cloning, Characterization, and Functional Expression of a Myrcene/(*E*)-β-Ocimene Synthase *Jörg Bohlmann, Diane Martin, Neil J. Oldham, and Jonathan Gershenzon* 261

Purification of Recombinant Flavanone 3β-Hydroxylase from *Petunia hybrida* and Assignment of the Primary Site of Proteolytic Degradation *Richard Lukačin, Inga Gröning, Emile Schiltz, Lothar Britsch, and Ulrich Matern* 364

PROTEIN STRUCTURE AND FUNCTION; PROTEASES, PROTEIN TURNOVER, AND POST-TRANSLATIONAL PROCESSING

Purification and Characterization of *Candida albicans* 20S Proteasome: Identification of Four Proteasomal Subunits *Pedro Fernández Murray, Mirtha J. Biscoglio, and Susana Passeron* 211

Role of Protein–Solvent Interactions in Refolding: Effects of Cosolvent Additives on the Renaturation of Porcine Pancreatic Elastase at Various pHs *Emmanuel Jaspard* 220

Molecular Cloning and Functional Expression of Contortrostatin, a Homodimeric Disintegrin from Southern Copperhead Snake Venom *Qing Zhou, Peisheng Hu, Matthew R. Ritter, Stephen D. Swenson, Svetlana Argounova, Alan L. Epstein, and Francis S. Markland* 278

Phospholipase A_2 with Platelet Aggregation Inhibitor Activity from *Austrelaps superbus* Venom: Protein Purification and cDNA Cloning *Simran Bedi Singh, Arunmozhiarasi Armugam, R. Manjunatha Kini, and Kandiah Jeyaseelan* 289

In Vivo Processing of Nonanchored Yapsin 1 (Yap3p) *Vicki Olsen and Y. Peng Loh* 315

Disruption of Interkringle Disulfide Bond of Plasminogen Kringle 1-3 Changes the Lysine Binding Capability of Kringle 2, but Not Its Antiangiogenic Activity *Hyosil Lee, Hyun-Kyung Kim, Jong-Hyouk Lee, Weon-Kyoo You, Soo-Il Chung, Soo-Ik Chang, Mee-Hee Park, Yong-Kil Hong, Hoon-Kyo Kim, and Young Ae Joe* 359

Author Index for Volume 375 389

NOTICE

The Subject Index for Volume 375 will appear in the December 15, 2000, issue as part of a cumulative index for the year 2000.